Iowa Department of Natural Resources
Environmental Protection Commission

ITEM **10** **DECISION**

TOPIC **Contract – University of Iowa Hygienic Laboratory – 2008 EPA Section 319 Monitoring and Laboratory Services**

The Department requests Commission approval of a contract in the amount of $ with the University of Iowa Hygienic Laboratory to conduct stream biological monitoring.

The objective of this program is to measure the performance of water quality improvement projects that are funded through the U.S. EPA Clean Water Act Section 319 Grants. One of the nine elements of a watershed plan is a monitoring component to evaluate the effectiveness of implementation efforts (319 Program – USEPA, 2001b). The monitoring plan should allow for assessment against established criteria including:

1. Substantial progress is being made toward achievement of water quality standards
2. Need for revision of TMDL endpoints if progress toward standards is not made
3. Load reductions from the implementation of the BMPs

The monitoring plans for each of the funded 319 projects for 2008 assumes that the measurement of load reduction is a necessary and important part of assessing whether or not the project criteria are being met. This contract provides for several aspects of monitoring and assessment to determine if the goals of watershed restoration are being achieved and include:

- Monitoring at the eight 319 watershed projects funded in 2008 for biweekly water chemistry including nutrients, sediment, and bacteria where applicable.
- Automated sampling of watersheds to capture event-driven water quality measurements at one to two sites in the watershed.
- Water flow measurements using pressure transducers and velocity measurements to facilitate the determination of load and load reductions in the watersheds.

Funding for this contract comes from the U.S. EPA Section 319 Funds.

Mary Skopec
Section Supervisor
Water Monitoring and Assessment
Iowa Geological and Water Survey Bureau
Environmental Services Division

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Section 5 STATEMENT OF WORK

5.1 Statement of Work. Contractor shall perform the following tasks:

Task 1: Perform collection of biological samples and water chemistry analysis and reporting for Nutting Creek Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for indicator bacteria (E. coli) and nutrients weekly during the recreational season (March 15th through November 15th) for each of the three years. Collect one annual biocriteria sampling at impaired site location for each of three years.

- A biological sample consisting of one full biocriteria benthic macroinvertebrate (IBI) sample and one full biocriteria fish (IBI) sample will be collected at each site. A quantitative DNR habitat assessment will be completed and a grab water sample will be collected, preferably on the same date as biological sampling.

- The following Full Biocriteria Sample Description will be used:

    - **Field:** Each sampling event shall include sampling aquatic biota, quantitatively assessing stream habitat; and manually measuring stream flow. Field measurements of dissolved oxygen, pH and water temperature also shall be taken. Fish shall be identified to species or the lowest practical taxonomic endpoint, counted, and examined for external anomalies in the field.

    - **Laboratory:** A complete sample set consisting of four individual samples for benthic macroinvertebrates (3 standard-habitat, 1 multi-habitat) will be collected. Samples shall be sorted, identified, verified, and catalogued in the laboratory. Two voucher fish specimens of each species shall be retained from each site. Small fish or fish that are difficult to identify shall be preserved and identified in the laboratory to species or the lowest practical taxonomic level. Water sample analytes are listed in Table 2. Samples submitted for analysis through this activity shall be coded as ***319BIO***. Sample collection, handling, and analysis shall be conducted according to applicable DNR and UHL QA/QC documentation.

- All samples submitted to UHL by Department or UHL staff shall be coded to a specific monitoring activity and shall include a detailed list of the analyses to be performed unless other arrangements have been made before shipment of the sample to UHL. UHL log-in procedures shall accommodate this code. A monthly report of the logged-in samples shall be provided in a mutually agreeable format. Any deviation from normal sampling procedures, such as a change in sampling location, omission of

samples for analysis, etc., shall be identified to DNR in writing prior to transmittal of analytical results.

- Field data sheets and results of biological, habitat and water sample analyses shall be provided by March 31, 2009. Water monitoring data will be electronically transferred in a STORET-compatible format via the IGS FTP site. Chemical data shall be transferred in a mutually agreeable format for entry into STORET.

- Benthic macroinvertebrate, fish assemblage, and stream physical habitat data will be entered into the DNR Biocrit database. All data entry shall be performed according to the Department's approved Standard Operating Procedure (SOP).

- Analytical data will be transmitted to the Department within time limits and by methods that are mutually agreeable by both parties.

- Information on data quality requirements and assessments (such as detection limit, quantitation limit, estimated accuracy, accuracy protocol, estimated precision, and precision protocol) will be submitted to DNR for any sample upon request. Information on the analytical reference method, sample preservation and holding time also shall be provided if requested.

- Copies of revised Methods Manuals and Standard Operating Procedure Manuals to the Department will be provided upon request. Copies of manuals and procedures shall be available from the laboratory.

Table 2. Biological Assessment Grab Water Sampling Analytes.

Biochemical Oxygen Demand (BOD)	Phosphorous Series: Dissolved Orthophosphate, Total Phosphorus
Chloride	Stream Flow (Field)
Chlorophyll-A (water)	Total Dissolved Solids
Chlorophyll-A (periphyton; only at coldwater (Task 4) sites)	Total Organic Carbon
Dissolved Inorganic Carbon	Total Suspended Solids
Dissolved Organic Carbon	Turbidity
Dissolved Oxygen (Field)	Volatile Suspended Solids
Nitrogen series: total ammonia-N, nitrate + nitrite-N, total kjehldahl-N	Water Temperature (Field)
pH (field)	

Task 2: Perform collection of biological samples and water chemistry analysis and reporting for Walnut Creek Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.
- Analyze water samples collected by the ISCO automated sampler during storm events for three years.
- Collect one annual biocriteria sampling at impaired site location for each of three years.
- A biological sample consisting of one full biocriteria benthic macroinvertebrate (IBI) sample and one full biocriteria fish (IBI) sample will be collected at each site. A quantitative DNR habitat assessment will be completed and a grab water sample will be collected, preferably on the same date as biological sampling.

- The following Full Biocriteria Sample Description will be used:

  - **Field:** Each sampling event shall include sampling aquatic biota, quantitatively assessing stream habitat; and manually measuring stream flow. Field measurements of dissolved oxygen, pH and water temperature also shall be taken. Fish shall be identified to species or the lowest practical taxonomic endpoint, counted, and examined for external anomalies in the field.

  - **Laboratory:** A complete sample set consisting of four individual samples for benthic macroinvertebrates (3 standard-habitat, 1 multi-habitat) will be collected. Samples shall be sorted, identified, verified, and catalogued in the laboratory. Two voucher fish specimens of each species shall be retained from each site. Small

fish or fish that are difficult to identify shall be preserved and identified in the laboratory to species or the lowest practical taxonomic level. Water sample analytes are listed in Table 2. Samples submitted for analysis through this activity shall be coded as ***319BIO***. Sample collection, handling, and analysis shall be conducted according to applicable DNR and UHL QA/QC documentation.

Task 3: Perform collection of biological samples and water chemistry analysis and reporting for Prairie Creek Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.
- Analyze water samples collected by the ISCO automated sampler during storm events for three years.
- Collect one annual biocriteria sampling at impaired site location for each of three years.
- A biological sample consisting of one full biocriteria benthic macroinvertebrate (IBI) sample and one full biocriteria fish (IBI) sample will be collected at each site. A quantitative DNR habitat assessment will be completed and a grab water sample will be collected, preferably on the same date as biological sampling.

- The following Full Biocriteria Sample Description will be used:

  - **Field:** Each sampling event shall include sampling aquatic biota, quantitatively assessing stream habitat; and manually measuring stream flow. Field measurements of dissolved oxygen, pH and water temperature also shall be taken. Fish shall be identified to species or the lowest practical taxonomic endpoint, counted, and examined for external anomalies in the field.

  - **Laboratory:** A complete sample set consisting of four individual samples for benthic macroinvertebrates (3 standard-habitat, 1 multi-habitat) will be collected. Samples shall be sorted, identified, verified, and catalogued in the laboratory. Two voucher fish specimens of each species shall be retained from each site. Small fish or fish that are difficult to identify shall be preserved and identified in the laboratory to species or the lowest practical taxonomic level. Water sample analytes are listed in Table 2. Samples submitted for analysis through this activity shall be coded as ***319BIO***. Sample collection, handling, and analysis shall be conducted according to applicable DNR and UHL QA/QC documentation.

Task 4: Perform collection of biological samples and water chemistry analysis and reporting for Union Grove Lake Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.

- Analyze water samples collected by the ISCO automated sampler during storm events for three years.

Task 5: Perform collection of biological samples and water chemistry analysis and reporting for Prairie Rose Lake Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.

- Analyze water samples collected by the ISCO automated sampler during storm events for three years.

Task 6: Perform collection of biological samples and water chemistry analysis and reporting for Lake Macbride Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.

- Analyze water samples collected by the ISCO automated sampler during storm events for three years.

Task 7: Perform collection of biological samples and water chemistry analysis and reporting for Littlefield Lake Watershed.

- Analyze water quality samples collected by the watershed coordinator and/or DNR monitoring personnel for nutrients monthly to biweekly for three years.

- Analyze water samples collected by the ISCO automated sampler during storm events for three years.

Section 6 MONITORING AND REVIEW

6.1 Task Milestone Dates. Contractor shall use its best efforts to complete its obligations under this Contract by the Task Milestone Dates set out in the following table:

Obligation	Task Milestone Date
Task 1-7: Sampling progress and sample Log-in Report in a format discussed and agreed to by the parties.	To the Department monthly
Task 1-7: Provide field data sheets and results of biological, habitat and water sample analyses. Transfer water monitoring data electronically in a STORET-compatible format via the IGS FTP site.	To the Department: March 31, 2011.
Task 1-3:.Enter benthic macroinvertebrate, fish assemblage, and stream physical habitat data into the DNR Biocrit database.	on-going
Task 1-7: Provide sample information to the Department upon request. Provide copies of Methods Manuals/Standard Operating Procedure Manuals (available from the laboratory) to the Department upon request.	on-going

Contractor shall notify DNR within 5 working days upon discovery of any delay in any of the above-designated portions of its obligations. Contractor and DNR shall discuss updated Task Milestone Dates. If the parties are unable to mutually agree to updated Task Milestone Dates within 30 days of DNR's receipt of notice of a delay, DNR may terminate this Contract for cause.

Section 7 COMPENSATION

7.3 Budget. The budget for this Contract shall be as follows:

Site	Activity	Expense
Nutting Creek		
	Full Bio annually, 3 years	$ 9,000.00
	Water Quality analyses	$ 23,000.00
Walnut Creek		
	Full Bio annually, 3 years	$ 9,000.00
	Water Quality analyses	$ 23,000.00
Prairie Creek		
	Full Bio annually, 3 years	$ 9,000.00
	Water Quality analyses	$ 23,000.00
Union Grove Lake		
	Water Quality analyses	$ 32,000.00

Lake Macbride	Water Quality analyses	$ 32,000.00
Prairie Rose Lake	Water Quality analyses	$ 32,000.00
Littlefield Lake	Water Quality analyses	$ 32,000.00
Indirect Costs		$ 17,920.00
Total		**$ 241,920.00**